



# PWH

**API 610  
SINGLE STAGE OH2**



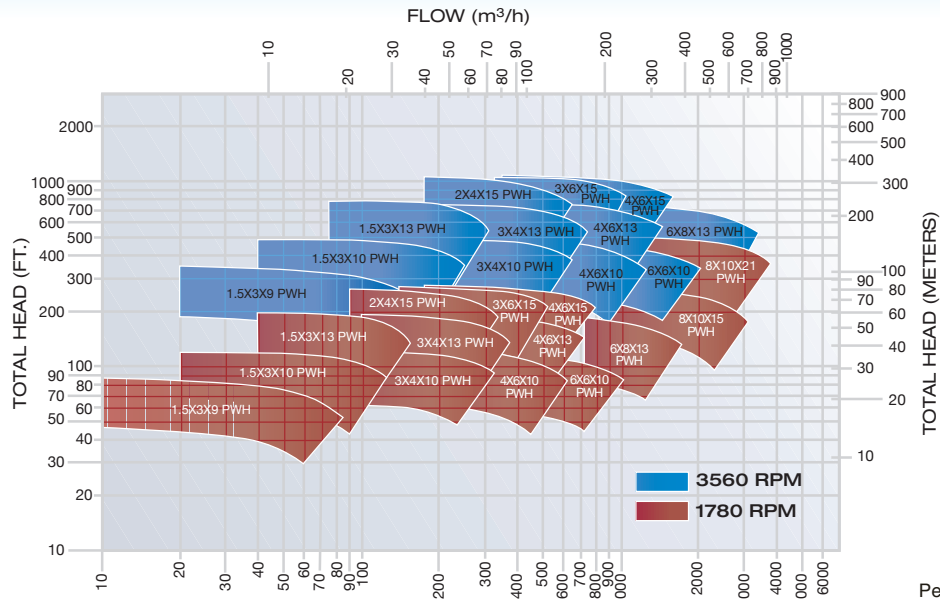
# PWH API 610 PROCESS PUMP

## HYDRAULIC PERFORMANCE COVERAGE

### 60 Hz Performance Coverage



Visit our web site at [www.pumpworks610.com](http://www.pumpworks610.com) and specify flow and performance needs and obtain pump selection, performance curve, drawing, and data sheet.

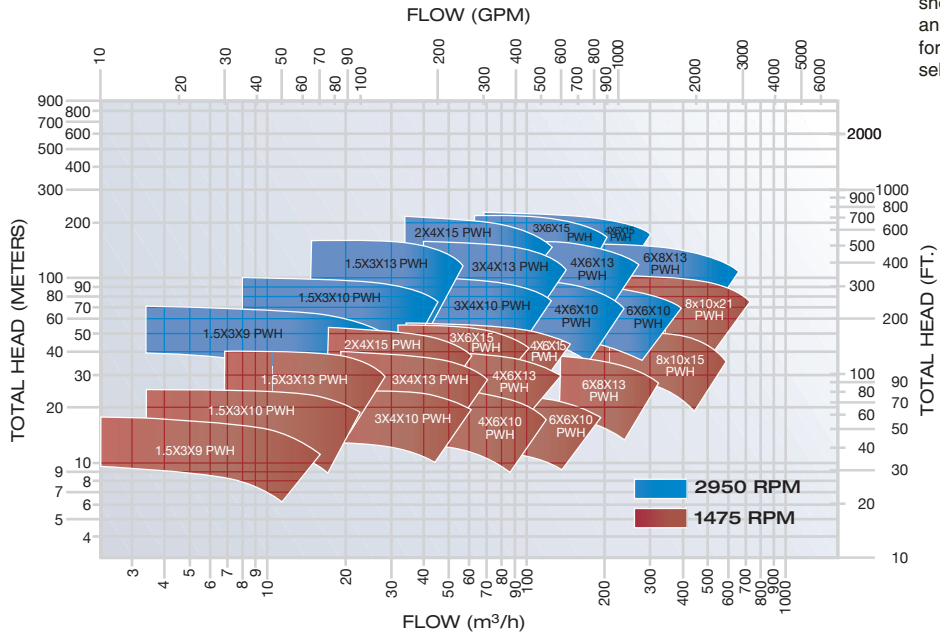


Performances shown are normal and are to be used for preliminary selection only.

### 50 Hz Performance Coverage



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## STANDARD MATERIALS OF CONSTRUCTION

API MATERIAL CLASS	S-6	S-8	C-6	A-8
CASING	A216 GRADE WCB	A216 GRADE WCB	A487 GRADE CA6NM	A351 GRADE CF3M
COVER	A516 GRADE 70	A516 GRADE 70	A479 TYPE 410SS	A479 TYPE 316/316L
IMPELLER	A487 GRADE CA6NM	A351 CF8M 316SS	A487 GRADE CA6NM	A351 CF8M 316SS
SHAFT	A276 TYPE 410SS CONDITION "T"	A479 TYPE 316 / 316L	A276 TYPE 410SS CONDITION "T"	A479 TYPE 316 / 316L
IMPELLER LOCK NUT	A479 TYPE 316L	A479 TYPE 316L	A479 TYPE 316L	A479 TYPE 316L
BEARING HOUSING	A216 GRADE WCB CARBON STEEL	A216 GRADE WCB CARBON STEEL	A216 GRADE WCB CARBON STEEL	A216 GRADE WCB CARBON STEEL
IMPELLER WEAR RINGS	420 SS HT: 400-450 BHN	316 SS HARD FACED	420 SS HT: 400-450 BHN	316 SS HARD FACED
CASING WEAR RINGS	410 SS HT: 262-302 BHN	316 SS HARD FACED	410 SS HT: 262-302 BHN	316 SS HARD FACED
THROAT BUSHING	410 SS HT: 262-302 BHN	316 SS HARD FACED	410 SS HT: 262-302 BHN	316 SS HARD FACED
CASING STUDS	A193 GRADE B-7	A193 GRADE B-7	A193 GRADE B-7	A193 GRADE B-7
CASING NUTS	A194 GRADE 2H	A194 GRADE 2H	A194 GRADE 2H	A194 GRADE 2H

\*Other API 610 Material Classes and Combinations are available

# PWH API 610 PROCESS PUMP

## DESIGN FEATURES AND BENEFITS

### Quality

- Manufactured and tested in the USA

### Dual Volute Casing

- On larger pump sizes
- Minimizes radial loads and shaft deflection increasing mechanical seal and bearing life

### Discharge Nozzle

- Tangential discharge maximizes hydraulic efficiency

### Drain & Vent Ports

- Threaded or socket welded
- Socket welded drain port two-plane gusseted and piped to skid edge 3/4" SCH 160 300# RF

### Casing Mounting Feet

- Gusseted to meet stringent API nozzle loading criteria

### Nozzle Load

- Casing & baseplate design exceeds current edition API 610 nozzle load requirement

### Impeller Retention

- Keyed and secured to shaft with exclusive dual set-screw locknut

### Pump Casing

- Precision machining and fully confined controlled compression gasket ensures proper sealing and ease to cover alignment

### Impeller

- Fully enclosed design provides increased efficiency
- Dynamically balanced to API 610 criteria

### Delivery

- 16 weeks for API 610 material class S-6, S-8 and C-6
- Refer to the factory on deliveries for other API material classes and customer specific material combinations

### ePOD Pump Selector

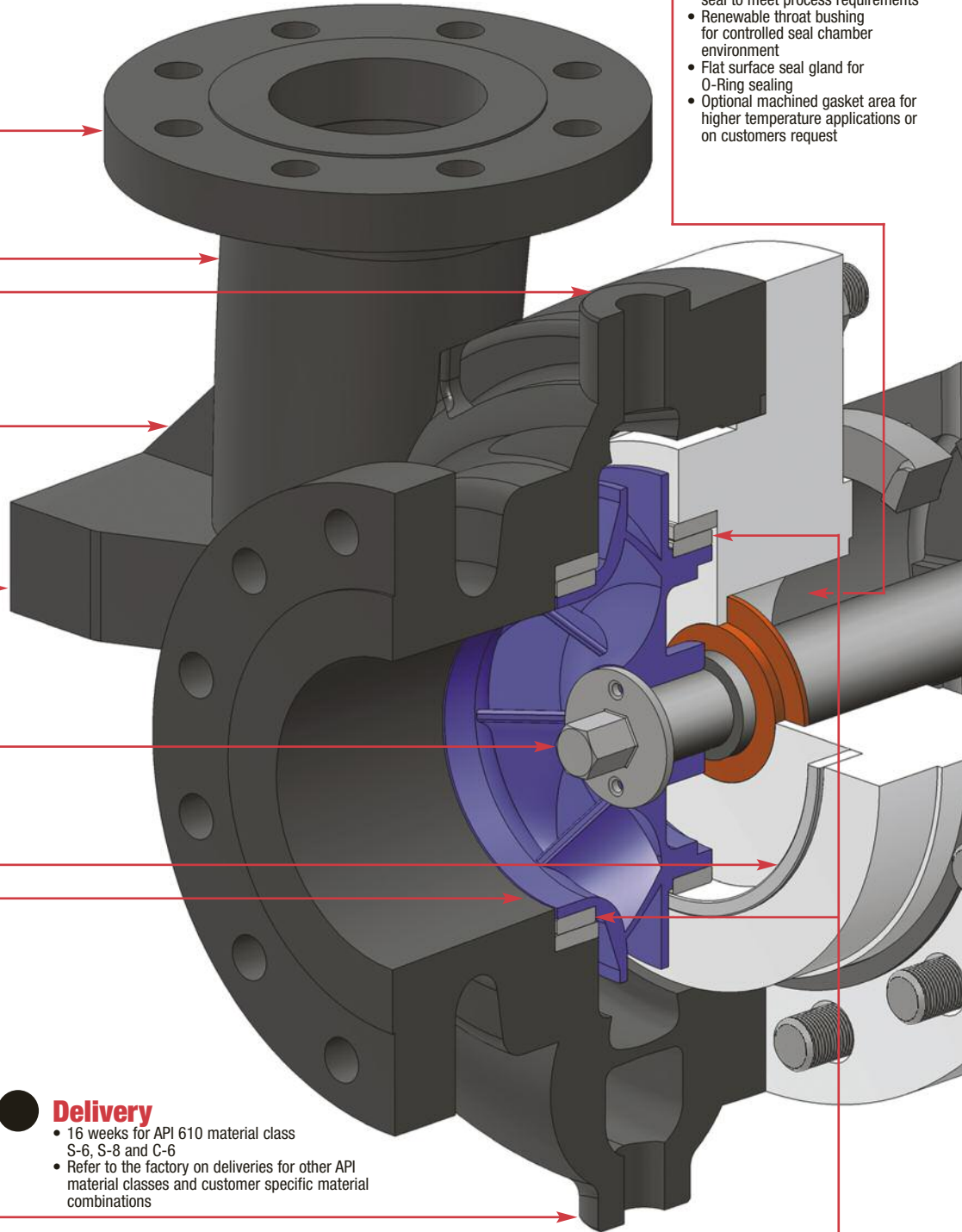
- Access to end users and influencers to select, configure and price your pump application on line at [www.pumpworks610.com](http://www.pumpworks610.com)

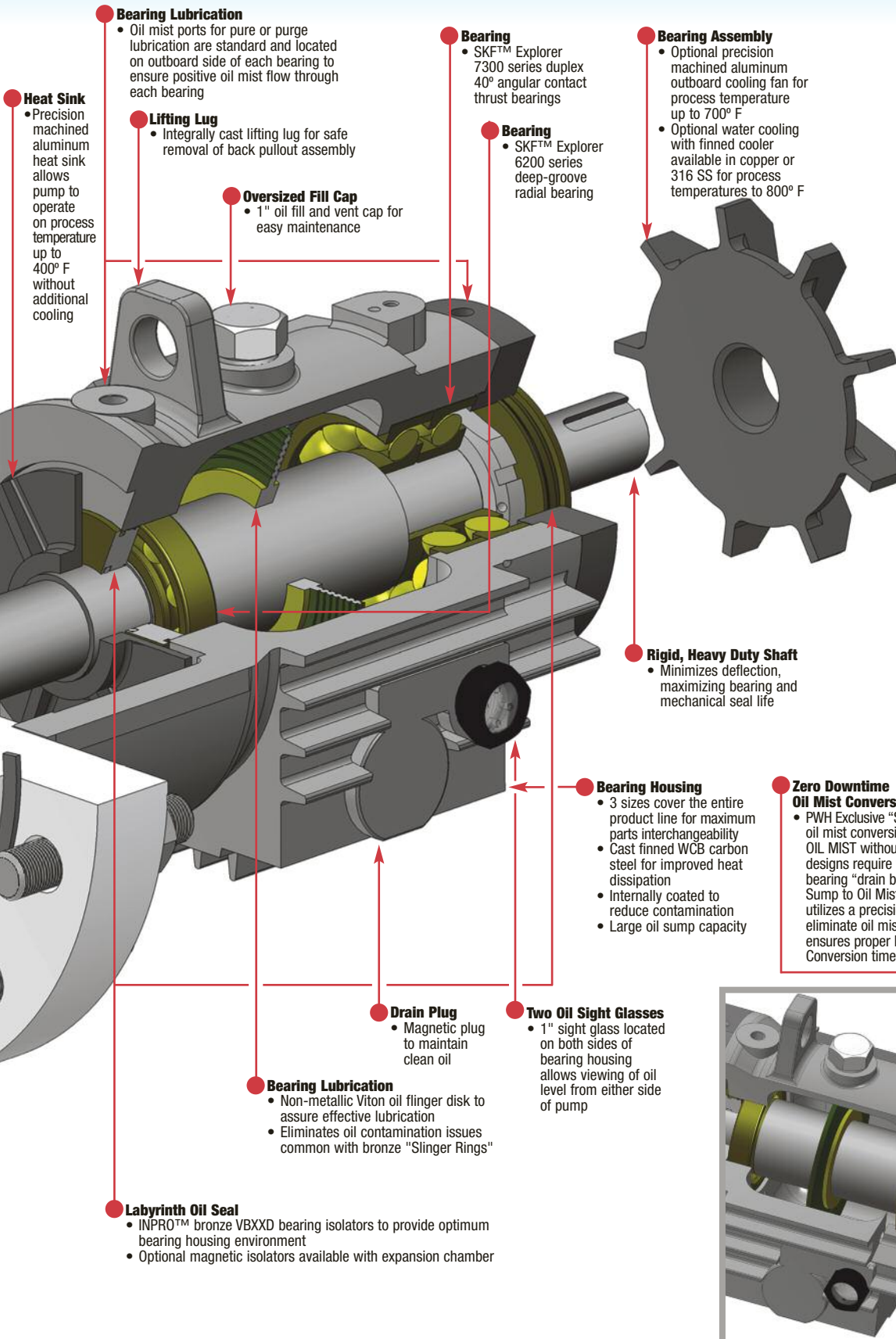
### Casing Cover and Seal Chamber

- API 610 seal chamber allows user to install any API 682 cartridge seal to meet process requirements
- Renewable throat bushing for controlled seal chamber environment
- Flat surface seal gland for O-Ring sealing
- Optional machined gasket area for higher temperature applications or on customers request

### Renewable Casing and Impeller Wear Rings

- Front and back rings control seal chamber pressure and provides impeller stability
- Optional non-metallic rings for improved efficiency and dry running





**Heat Sink**

- Precision machined aluminum heat sink allows pump to operate on process temperature up to 400° F without additional cooling

**Bearing Lubrication**

- Oil mist ports for pure or purge lubrication are standard and located on outboard side of each bearing to ensure positive oil mist flow through each bearing

**Lifting Lug**

- Integrally cast lifting lug for safe removal of back pullout assembly

**Oversized Fill Cap**

- 1" oil fill and vent cap for easy maintenance

**Bearing**

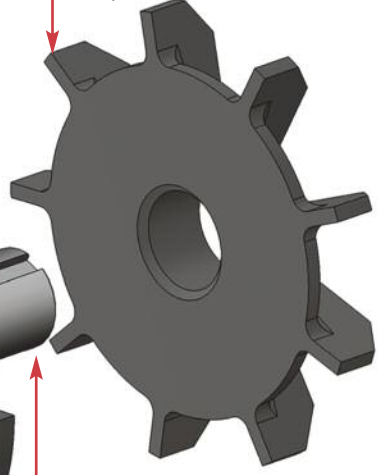
- SKF™ Explorer 7300 series duplex 40° angular contact thrust bearings

**Bearing**

- SKF™ Explorer 6200 series deep-groove radial bearing

**Bearing Assembly**

- Optional precision machined aluminum outboard cooling fan for process temperature up to 700° F
- Optional water cooling with finned cooler available in copper or 316 SS for process temperatures to 800° F



**Rigid, Heavy Duty Shaft**

- Minimizes deflection, maximizing bearing and mechanical seal life

**Bearing Housing**

- 3 sizes cover the entire product line for maximum parts interchangeability
- Cast finned WCB carbon steel for improved heat dissipation
- Internally coated to reduce contamination
- Large oil sump capacity

**Zero Downtime Oil Mist Conversion**

- PWH Exclusive "SMART LUBE SYSTEM": The innovative oil mist conversion kit allows user to convert to PURE OIL MIST without removing pump from service! Other designs require you to pull the unit and plug thrust bearing "drain back" ports when converting from Oil Sump to Oil Mist. The PWH "SMART LUBE SYSTEM" utilizes a precision tolerance, elongated port plug to eliminate oil mist "leakage" around bearings. This ensures proper lubrication and limited downtime. Conversion time is less than 5 minutes.

**Drain Plug**

- Magnetic plug to maintain clean oil

**Two Oil Sight Glasses**

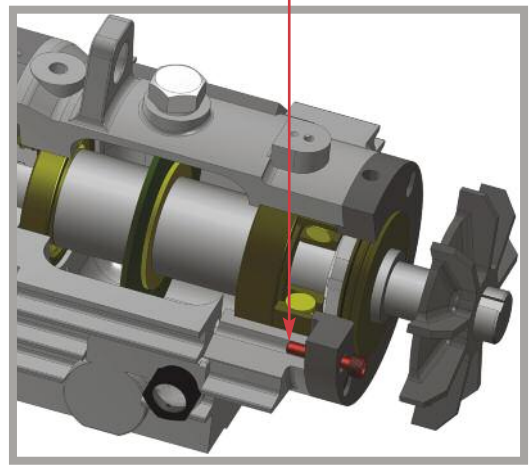
- 1" sight glass located on both sides of bearing housing allows viewing of oil level from either side of pump

**Bearing Lubrication**

- Non-metallic Viton oil flinger disk to assure effective lubrication
- Eliminates oil contamination issues common with bronze "Slinger Rings"

**Labyrinth Oil Seal**

- INPRO™ bronze VBXXD bearing isolators to provide optimum bearing housing environment
- Optional magnetic isolators available with expansion chamber



**PW-11**  
API 610 SINGLE STAGE OH2 UPGRADE PROGRAM

PW-11 is the PumpWorks 610 retrofit upgrade kit for any brand of API 610 single stage OH2 process pump. See our PW-11 API 610 Upgrade Program Brochure for more information.



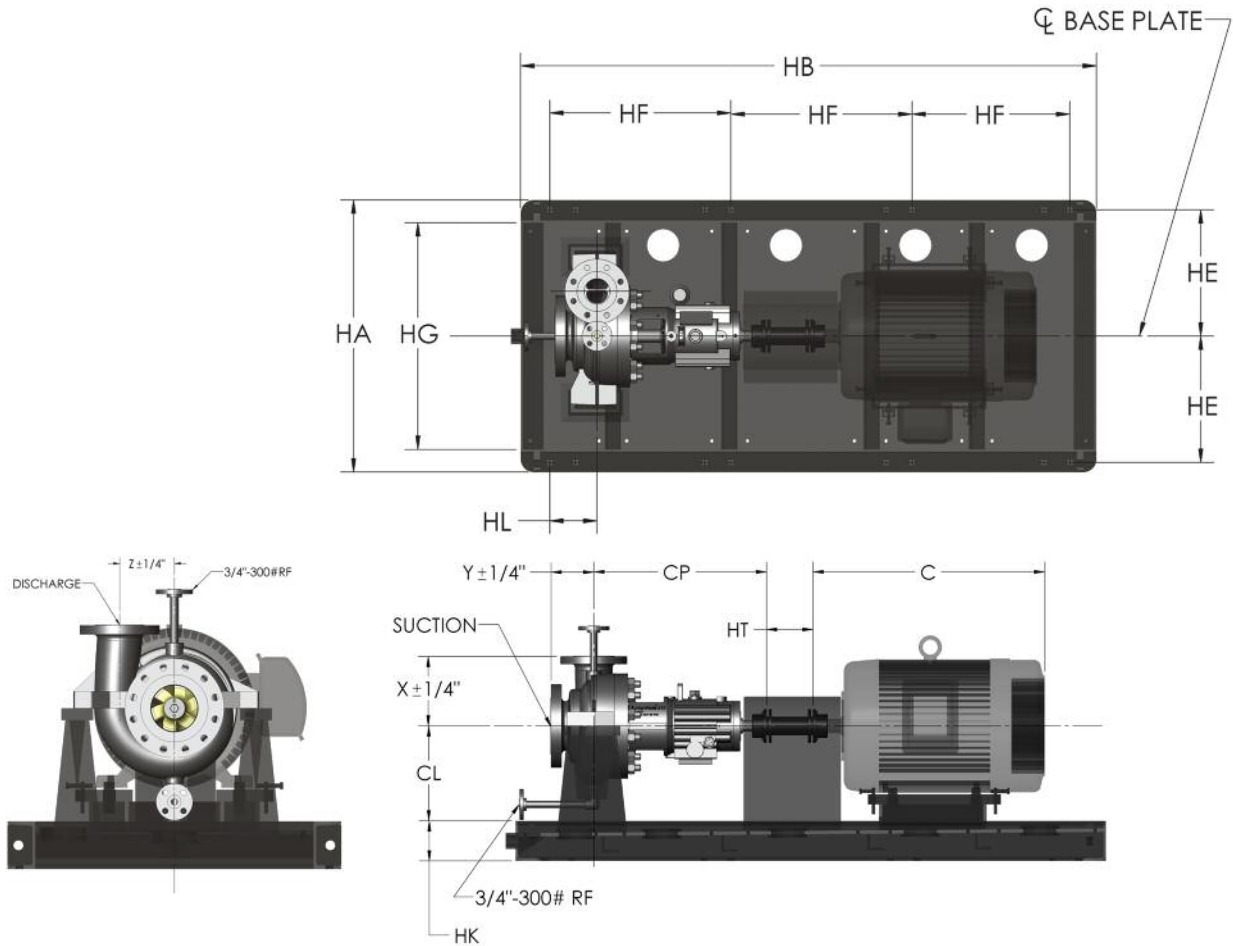
**PWV**  
API 610 Vertical Turbine Pump VS6 (Can Type) VS1 (Sump Type)

PWV is the PumpWorks 610 API 610 current edition VS6 and VS1 vertical turbine pump. See our PWV API 610 Vertical Turbine VS6 (Can Type) and VS1 (Sump Type) Brochure for more information.



# PWH API 610 PROCESS PUMP

## OUTLINE DIMENSIONS



### PUMP AND DRIVER DIMENSIONS

PUMP SIZE	PUMP WEIGHT-LBS	CP	CL	HL	HT	X	Y	Z	SUCTION	DISCHARGE	BASE #
1.5x3x9	550	24.937	12.62	5	5	8.5	6.625	5.125	3	1.5	3
1.5x3x10	600	24.937	14	6	5	10.5	6.9	5.875	3	1.5	3
3x4x10	630	25.64	15.25	6	7	10.06	10.62	6.31	4	3	5
4x6x10	650	25.62	14.5	6	7	10.5	9.29	10.87	6	4	5.5A
6x6x10	650	25.71	14.5	8	7	11	6.87	6	6	6	6
1.5x3x13	630	27.62	11.5	6	5	11.75	7.75	6.87	3	1.5	5
3x4x13	680	27.5	16	6.5	7	13.07	7.5	8.15	4	3	5.5B
4x6x13	700	27.62	18	8.5	7	14	13.43	9.25	6	4	6.5
6x8x13	750	28.438	20	8	8	15.06	8.937	10.5	8	6	7A
2x4x15	700	28.187	12.5	7	7	13	8	7.875	4	2	6
3x6x15	800	28.187	16	7.25	7	12.437	8.15	8.75	6	3	6.5
4x6x15	850	28.437	16	7	7	15.75	7	8.5	6	4	7A
8x10x15	1100	28.562	22	9.5	7	16.062	10.12	12	10	8	6.5
8x10x21	1800	30.38	24	10	7	19	10	15.5	10	8	7A

### BASEPLATE DIMENSIONS

BASE #	HA	HB	HK	HE	HF	HG	WEIGHT-LBS.
3	36	72.5	6	16.5	30.25	30	900
5	42	72.5	6	19.5	30.25	36	1000
6	42	96.5	6	19.5	28.16	36	1200
6.5	42	108.5	8	19.5	24.12	36	1400
5.5A	42	84.5	6	19.5	24.16	36	1100
5.5B	42	84.5	8	19.5	24.16	36	1150
7A	61	124	8	29	37.32	55	2077

### NOTES

1. DIMENSIONS ARE IN INCHES
2. DIMENSIONS OF PUMP ARE  $\pm 0.12"$  UNLESS OTHERWISE NOTED
3. DIMENSIONAL TOLERANCES OF MOTOR ARE IN COMPLIANCE WITH NEMA MG-1
4. PUMP FLANGE RATINGS ARE ANSI B16.5 300# RF
5. CCW ROTATION VIEWED FROM COUPLING END
6. BASEPLATE DIMENSIONS NOT TO BE USED FOR CONSTRUCTION

# PWH API 610 PROCESS PUMP

## TECHNICAL DATA

PUMP SIZE		1.5x3x9	1.5x3x10	3x4x10	4x6x10	6x6x10	1.5x3x13	3x4x13	4x6x13	6x8x13	2x4x15	3x6x15	4x6x15	8x10x15	8x10x21
FLANGE	SUCTION - 300# RF [IN]	3	3	4	6	6	3	4	6	8	4	6	6	10	10
	DISCHARGE - 300# RF [IN]	1.5	1.5	3	4	6	1.5	3	4	6	2	3	4	8	8
MAWP	S-6 [PSIG 100 DEG F]	740													
	S-8 [PSIG 100 DEG F]														
	C-6 [PSIG 100 DEG F]														
	A-8 [PSIG 100 DEG F]														
Mechanical Group		IA			IB			IIA			IIB			IIIA	
Bearing Frame		I			I			II			II			III	
Volute Type		SINGLE			DOUBLE			SINGLE		DOUBLE		SINGLE		DOUBLE	
AUX PORTS	Discharge (Flush) [IN]	1/2													
	Vent [IN]	1/2													
	Drain [IN]	1/2			3/4			1/2			3/4				
	Suction [IN]	1/2													
SHAFT	Max Impeller [IN]	9.0	10.5	10.5	10.5	10.5	13.3	13.3	13.3	13.3	15.5	15.5	15.5	15.5	21.0
	Min Impeller [IN]	7.0	8.0	8.0	8.0	8.0	10.0	10.0	10.0	10.0	12.0	12.0	12.0	12.0	15.0
	Diameter at Coupling [IN]	1.63			1.88			2.38			2.38			2.50	
	Keyway at Coupling [IN]	0.38			0.50			0.50					0.75		
	Extension at Coupling [IN]	3.50			3.50			3.50					4.50		
	Diameter at Mechanical Seal [IN]	2.00			2.75			3.50					3.37		
	Diameter Between Bearings [IN]	3.00			3.50			3.50					4.25		
	Distance Between Bearings [IN]	7.74			8.81			8.81					9.64		
	Radial Bearing	6212			6215			6215					6218		
	Thrust Bearing	7312 X 2			7314 X 2			7314 X 2					7317 X 2		
	Maximum RPM	3600			3600			3600					1780		
	Maximum HP/100 RPM	8.0			12.5			12.5					21.5		

### Typical Applications

PWH pump is designed for covering the full range of petroleum refinery services, petrochemical plants, gas processing, oil processing, offshore installations (platforms), hydrocarbon and crude oil pipeline, and aviation (jet) fueling.

**PumpWorks 610 TEST FACILITY**

**Comprehensive Performance Test**  
 It is the function of any pump manufacturer to provide performance data for their products. The PumpWorks 610 Test Facility provides a comprehensive performance test facility for pumps of all sizes and types. The facility is equipped with the latest test equipment and is staffed by experienced test engineers.

**Test Facility Capabilities:**

- The flow rate: 750 gpm
- The pressure: 1000 psi
- The temperature: 1000 F
- The viscosity: 1000 cP
- The pump size: 1.5x3x9 through 8x10x21
- The pump type: centrifugal, vertical, horizontal, and special
- The test medium: water, oil, and other liquids
- The test equipment: flow meters, pressure transmitters, and other instruments
- The test procedure: ISO 9906 and other standards
- The test results: performance curves and other data

See our PumpWorks 610 Test Facility Brochure for more information.

### The PumpWorks 610 Pump Test Facility

located in Tyler, Texas USA provides performance and NPSHR test in accordance with latest edition of API 610 for horizontal and vertical pumps.

See our PumpWorks 610 Test Facility Brochure for more information.

### Typical Services

Services covered but not limited by the PWH pump include:

- Column reflux
- Column bottoms
- Reboiler
- Injection fuel blending
- Heat transfer
- Gas oil
- Heavy gas oil
- Hot oil
- Column charge
- Reactor feed
- Coker unit
- Stabilizer overhead
- Scrubber circulation
- Tower bottoms
- Off-site hydrocarbon
- Stripper overhead
- Gasoline
- Water
- Propanes
- Crude oil
- Vis-breaker
- Naphtha
- Kerosene



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